Analog Filtering in Instrumentation Using Posicast

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Abstract

Analog filters are essential in industrial environments for noise reduction. The filter approximation that presents the best performance in noise reduction is Tchebyshev. This approximation introduces distortions in pulsed signals due to overshoot. The analysis and design of analog filters using a Posicast element are presented. Posicast is a feedforward compensator that reduces overshoot in system response. The authors present a direct method to design analog filters using Posicast, which is based on knowledge of the step response overshoot and system's damped time response period. Simulated results for two filters (Tchebyshev and Bessel) indicates that the new method reduces distortion in pulsed signals, without affecting its performance in frequency.

Keywords

Analog filters, Input shapers, Lightly damped systems, Posicast